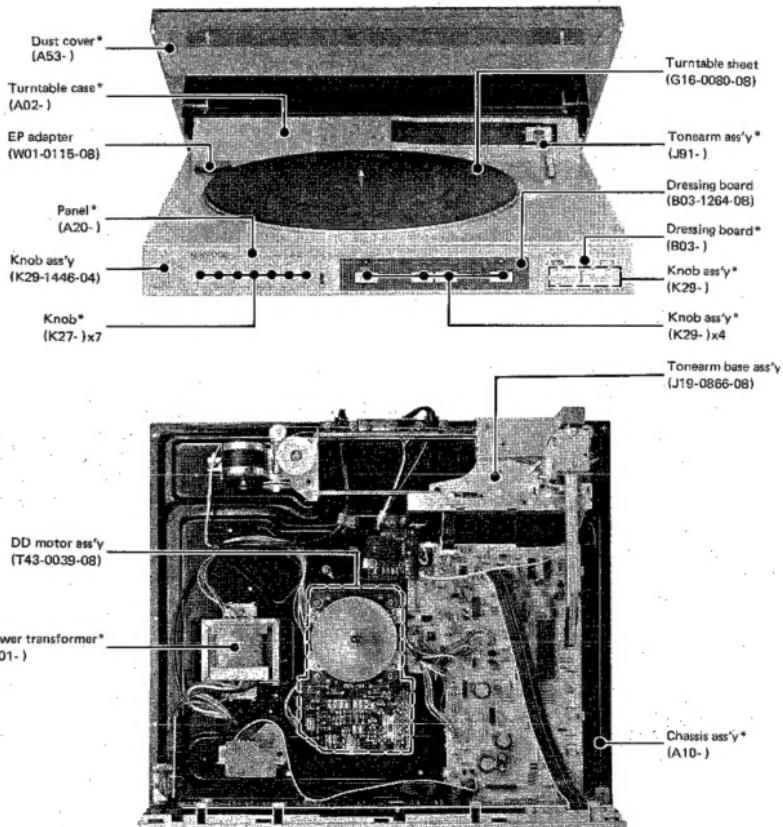


# SERVICE MANUAL

# KENWOOD

**KD-72F**  
**KD-72FE**

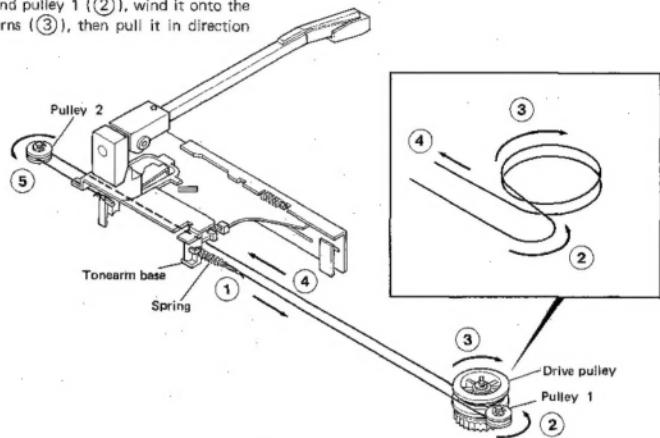
## COMPUTER CONTROLLED AUTOMATIC TURNTABLE



\* Refer to parts list on page 9.  
Photo is KD-72F.

## **DIAL CORD STRINGING/BLOCK DIAGRAM**

1. Attach the spring to the loop at one end of the string, and hitch it onto the arm base. Pull the string in direction ①.
2. Pass the string around pulley 1 (②), wind it onto the drive pulley two turns (③), then pull it in direction ④.
3. Pass the string around pulley 2 (⑤), and fix it to the arm base.



## BLOCKDIAGRAM

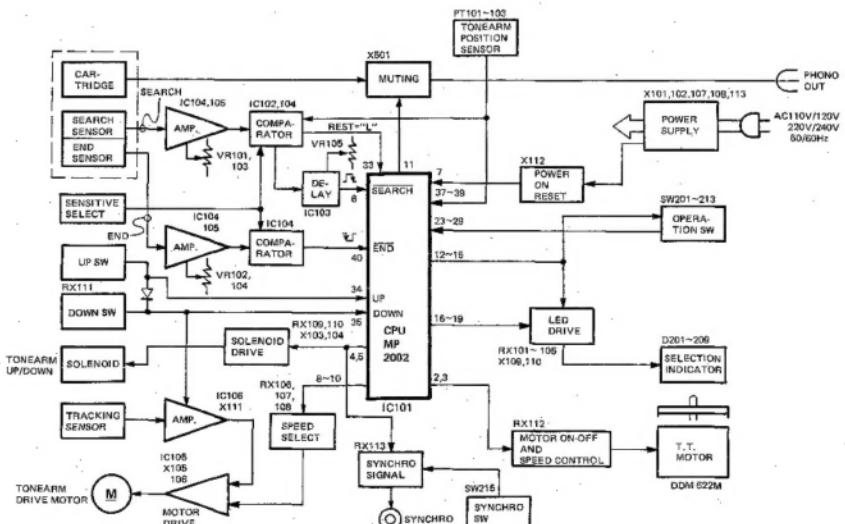


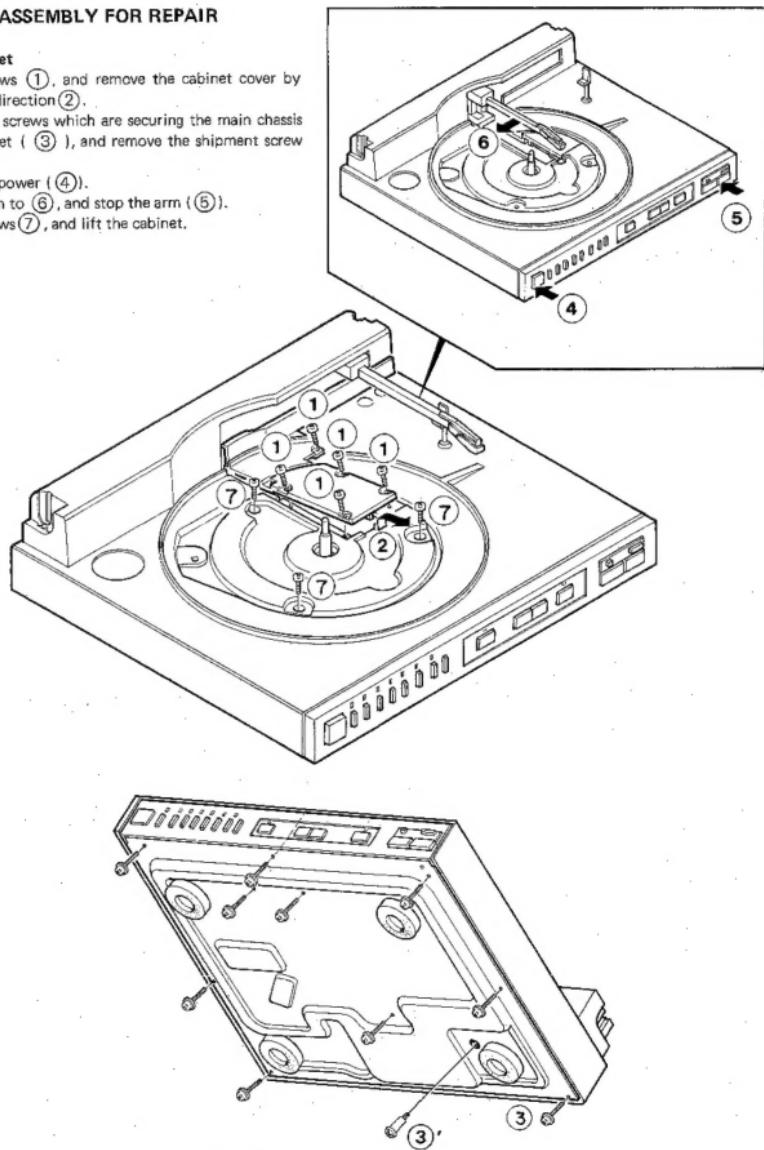
Fig. 1

## DISASSEMBLY FOR REPAIR

## HOW TO DISASSEMBLY FOR REPAIR

## Removing cabinet

1. Remove screws (1), and remove the cabinet cover by pulling it in direction (2).
2. Remove the screws which are securing the main chassis to the cabinet ( (3) ), and remove the shipment screw ( (3) ).
3. Turn on the power ( (4) ).
4. Move the arm to ( (6) ), and stop the arm ( (5) ).
5. Remove screws (7), and lift the cabinet.



## CIRCUIT DESCRIPTION

## 1. Composition

All the operations of this turntable are controlled by the control IC. The control IC detects the outputs of various sensors, and outputs the signals to the drive circuit.

The block diagram of this turntable is shown in Fig. 1.

## 2. Control IC

This IC is a microprocessor, and the functions of its terminals are shown in Fig. 2. Just after turning of the power, signal "L" is applied to terminal RES, then the turntable is operated according to the internal program. The output port is the open drain type when the port is H level it is open connection and when the port is L level it is 0 volt.

## 3. Sensor to detect space between musics

There are two sensors to detect space between musics. One is in the circuit which detects the space between musics when moving the arm (1), and the other is in the circuit which detects when the turntable is operating (2).

## 4. Input of operation switch

The matrix system is employed. Which switch is pressed is detected by sending out pulses which has deviated phase from the output terminal. The input of a switch pressed first has a priority, and the next switch cannot input unless the first switch is released.

Phototransistors PT101-103 are combined with the light shield plate which moves together with the arm base and used to detect the position of the arm, search signals, and sizes of the records. While the arm is in the resting position, PT101 is turned on and others are turned off. As the arm moves inward, all the three are temporarily turned off, then turned on in order of PT103, 102 and 101. While the arm is resting, pin 11 of IC102 is at "L". Once the search signal is outputted from pin 10 of IC103, F.F of IC102 is reversed and pin 10 is set to "L" and pin 11 to "H" to notify the microcomputer that the arm has moved above the record. In addition, the level of pin 12 of IC104 in the search comparator is set high to raise the threshold value being searched so that the blanks among musics can be accurately detected.

The end detecting phototransistor detects the blanks among musics. When the arm comes to a wide groove of the record (a blank among musics), pin 8 of IC104 is set to "L", and that is notified to END input of the microcomputer, then the microcomputer starts the ending operation after one music.

IC101 (microprocessor) is NCh MOS LSI which contains the mask program of 2 kilobytes that controls the whole player. The roles of pins, and the voltages and waveforms applied to them are shown in attached tables.

Port No.	I/O	Description	Port No.	I/O	Description
1	—	Clock signal	22	I	Power supply (+5V)
2	O	When turntable works, port has L level	23	I	When turntable is in fast feed, port has L level
3	O	When turntable works in 45rpm, port has L level	24	I	When turntable is in inside feed, port has L level
4	O	When solenoid (1) keeps to work, port has L level	25	I	When turntable is in outside feed, port has L level
5	O	When solenoid (2) kicks, port has L level	26	I	When matrix-in 1 works, port has L level
6	I	When pickup searches music interval, port has L level	27	I	When matrix-in 2 works, port has L level
7	I	When turntable is in rest, port has L level	28	I	When matrix-in 3 works, port has L level
8	O	When turntable is in fast feed, port has L level	29	I	When matrix-in 4 works, port has L level
9	O	When turntable is in inside feed, port has L level	30	I	When mode 1 works, port has L level
10	O	When turntable is in outside feed, port has L level	31	I	When mode 2 works, port has L level
11	O	When muting works, port has H level	32	I	When mode 3 works, port has L level
12	O	When matrix-out 1 works, port has L level	33	I	When turntable is put on record, port has H level
13	O	When matrix-out 2 works, port has L level	34	I	When pickup goes up completely, port has H level
14	O	When matrix-out 3 works, port has L level	35	I	When pickup goes down completely, port has H level
15	O	When matrix-out 4 works, port has L level	36	—	Power supply (+5V)
16	O	When LED 1 works, port has L level	37	I	When EP record is put on platter, port has H level
17	O	When LED 2 works, port has L level	38	I	When 25cm record is put on platter, port has H level
18	O	When LED 3 works, port has L level	39	I	When LP record is put on platter, port has H level
19	O	When LED 4 works, port has L level	40	I	When music end is found, port has L level
20	—	No use (0V)	41	—	Power supply (+5V)
21	—	Power supply (0V) GND	42	—	Clock signal

Fig. 2

## ADJUSTMENT/REGLAGE

• **Adjusting arm tracking center**

1. Connect a DC voltmeter to Pin 1 (GND) and 6 of TP101.
2. With the arm fully bent to the left, turn VR106 until the voltage is 9.0V.
3. Return the arm to the center, and turn the eccentric pin of the arm base (Fig. 3) until the voltage is 0V.
- **Adjusting sensitivity of sensor to detect space between music (1)**
  1. Connect a DC voltmeter to Pin 1 (GND) and 2 of TP101.
  2. Move the arm over the lacquer disc (a glossy surface of a usual disc will do).
  3. Turn VR101 (main) and VR103 (sub) to set the voltage to  $4.3 \pm 0.3$ V. If they are turned clockwise, the voltage rises, and vice versa.
- **Adjusting sensitivity of sensor to detect space between music (2)**
  1. Connect a DC voltage to Pin 1 (GND) and 3 of TP101.
  2. Move the arm over the lacquer disc (a glossy surface of a usual disc will do), and lower it.
  3. Turn VR102 (main) and VR104 (sub) to set the voltage to  $2.3 \pm 0.3$ V. If they are turned clockwise, the voltage rises, and vice versa.

• **Réglage de l'alignement du bras de lecture par rapport à la cellule**

1. Connecter un voltmètre c.c. aux broches 1 (masse) et 6 de TP101.

2. Décaler la cellule à extrémité gauche par rapport au bras de lecture et régler VR106 de façon à obtenir une tension de 9,0V sur le voltmètre.

3. Aligner alors la cellule au bras de lecture, puis tourner la vis de décentrage située à la base du bras (Figure 3) de façon à obtenir une tension de 0V sur le voltmètre.

• **Réglage de la sensibilité du capteur (1) du sillon inter-musique**

1. Connecter un voltmètre c.c. aux broches 1 (masse) et 2 de TP101.

2. Déplacer le bras de lecture sur un disque laqué (ou sur un disque disponible sur le marché, à sa face luisante).

3. Régler VR101 (principale) et VR103 (auxiliaire) de façon à obtenir une tension de  $4,3 \pm 0,3$ V sur le voltmètre.

Pour augmenter la tension, les tourner dans le sens des aiguilles d'une montre et vice versa.

• **Réglage de la sensibilité du capteur (2) du sillon inter-musique**

1. Connecter un voltmètre c.c. aux broches 1 (masse) et 3 de TP101.

2. Déplacer le bras de lecture et l'abaisser sur un disque laqué (ou sur un disque disponible sur le marché, à sa face luisante).

3. Régler VR102 (principale) et VR104 (auxiliaire) de façon à obtenir une tension de  $2,3 \pm 0,3$ V sur le voltmètre.

• **Adjusting lowering position of arm for selecting music**

1. Let the turntable play the music on a disc, the space between music of which is narrow to check the music selection performance (about 0.5mm).
2. Turn VR105 so that the desired music can be played from the first. If it is turned clockwise, the starting point is moved inward.
- **Adjusting lead-in position**
  1. Place the test record (ES1008), and press the START switch.
  2. Before the arm moves over the record, reflect the light in a glossy thing toward the sensor at the end of the arm.
  3. Turn the eccentric pin of the arm base (Fig. 3) so that the needle lowers on a position of 15-25 counts.
- **Adjusting turntable speed**
  1. Adjust the turntable speed to 45 rpm using VR1 on the circuit board of the motor.
  2. Adjust the turntable speed to 33 rpm using VR2.

**Note : If the speed of 33 rpm is adjusted first, it will be incorrect.**

Pour augmenter la tension, les tourner dans le sens des aiguilles d'une montre et vice versa.

• **Réglage de la position de descente du bras de lecture en mode de sélection du programme musical**

1. Utiliser alors un disque dont le sillon intermusique est étroit (environ 0,5mm).

2. Régler VR105 de façon à pouvoir écouter le programme désiré dès le début.

Si on tourner VR105 dans le sens des aiguilles d'une montre, la position de départ du programme est déplacée vers l'intérieur cintronférentiel du disque.

• **Réglage de la position de départ**

1. Placer un disque d'essai (ES1008) sur le plateau tournidisques, puis appuyer sur l'interrupteur "START" (lancement).

2. Avant que le bras de lecture ne se déplace au-dessus du disque, réfléchir un rayon lumineux sur un objet luisant de manière à ce que le rayon réfléchi tombe sur le capteur installé au bout du bras de lecture.

3. Tourner la vis de décentrage située à la base du bras de lecture (figure 3) de telle manière que la pointe de lecture descende sur le disque à un comptage de 15 à 25.

• **Réglage du nombre de tours du plateau tournidisque**

1. Régler le nombre de tours, 45 tr/mn, à l'aide de VR1 monté sur le substrat du moteur.

2. A la fin du réglage du nombre de tours 45 tr/mn, procéder au réglage du nombre de tours 33 tr/mn à l'aide de VR2.

**Remarque : Si l'ordre de réglage n'est pas respecté, le nombre de tours 33 tr/mn pourra être déréglé.**

## ABGLEICH

• **Einstellung der Armbabstastmette**

1. Ein Gleichstromvoltmeter an Stift 1 (GND) und Stift 6 von TP101 anschließen.
2. Den Arm ganz nach links schwenken und VR106 so einstellen, daß die Spannung zu 9,0V wird.

3. Den Arm zur Mitte zurückbringen, und den Exzenterstift (Abb. 3) so einstellen, daß die Spannung 0V wird.

• **Einstellung der Empfindlichkeit für den Pausenfuhrer (1)**

1. Ein Gleichstromvoltmeter an Stift 1 (GND) und Stift 2 von TP101 anschließen.
2. Den Arm auf einer Lackplatte (oder auf dem glänzenden Teil einer Schallplatte) bewegen.

3. Mit VR101 (Haupteinstellung) und VR103 (Hilfseinstellung) auf  $4,3 \pm 0,3$ V einstellen.

Die Spannung wird durch Drehung im Uhrzeigersinn größer und durch Drehung gegen den Uhrzeigersinn kleiner.

• **Einstellung der Empfindlichkeit für den Pausenfuhrer (2)**

1. Ein Gleichstromvoltmeter an Stift 1 (GND) und Stift 3 von TP101 anschließen.
2. Den Arm auf einer Lackplatte (oder auf dem glänzenden Teil einer Schallplatte) bewegen.

3. Mit VR102 (Haupteinstellung) und VR104 (Hilfseinstellung) auf  $2,3 \pm 0,3$ V einstellen.

Die Spannung wird durch Drehung im Uhrzeigersinn größer und durch Drehung gegen den Uhrzeigersinn kleiner.

• **Einstellung der Armbesenposition bei Titelwahl**

1. Wiedergabe mit Titelwahl mit einer Schallplatte mit geringer Titelbreite (etwa 0,5mm) durchführen.

2. VR105 so einstellen, daß der gewählte Titel von Anfang an gehört wird. Durch Drehung im Uhrzeigersinn wird die Abserposition nach innen verschoben.

• **Einstellung der Einleitungsposition**

1. Die Schallplatte (ES1008) auf den Plattenteller aufliegen und die Starttaste drücken.
2. Mit einem glänzenden Gegenstand Licht auf den Führer an der Armspitze reflektieren, bevor sich der Arm auf der Schallplatte bewegt.

3. Mit dem Exzenterstift (Abb. 3) an der Armbasis so einstellen, daß die Nadel beim Zahlwert 15 bis 25 abgesenkt wird.

• **Einstellung der Drehzahl des Plattentellers**

1. VR1 auf der Motorbasis so einstellen, daß die Drehzahl zu 45 U/min wird.
2. Nach der Einstellung von 45 U/min mit VR2 so einstellen, daß die Drehzahl zu 33 U/min wird.

**Zur Beachtung : Wenn die Einstellung in umgekehrter Reihenfolge durchgeführt wird, so wird eine Abweichung für 33 U/min verursacht.**

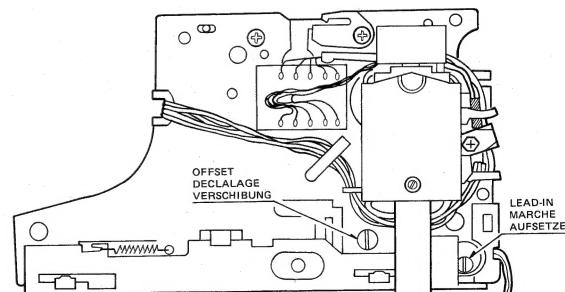
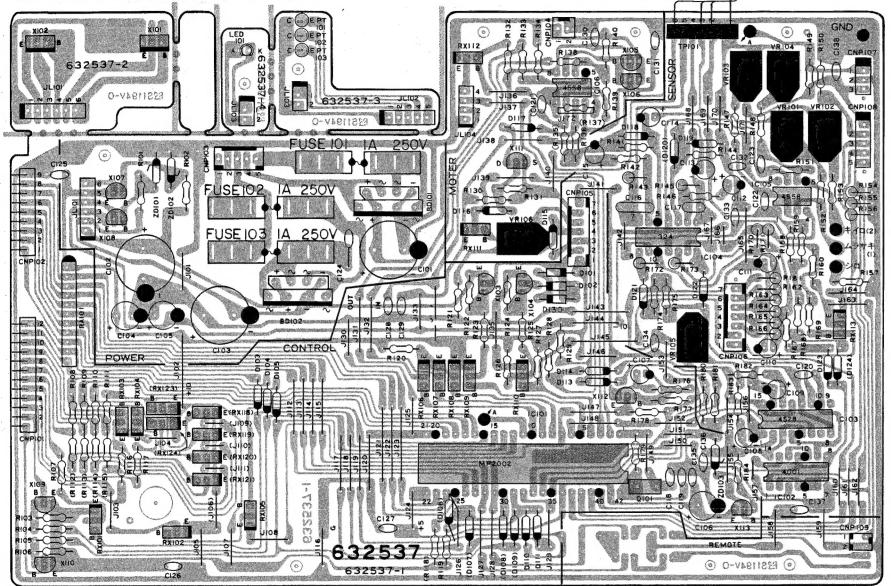


fig. 3

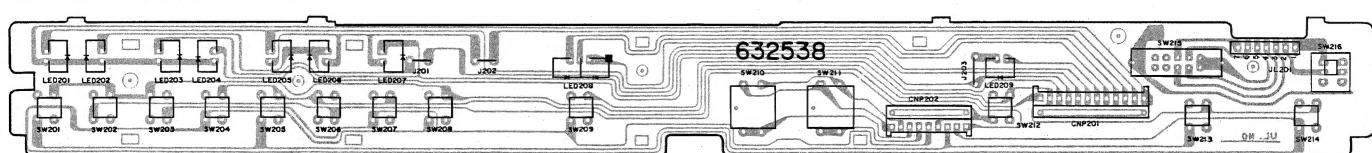
**KD-72F/B**

## PC BOARD

CONTROL UNIT (W02-0600-08) Component side view



OPERATION UNIT (W02-0599-08) Component side view

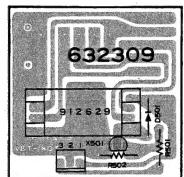


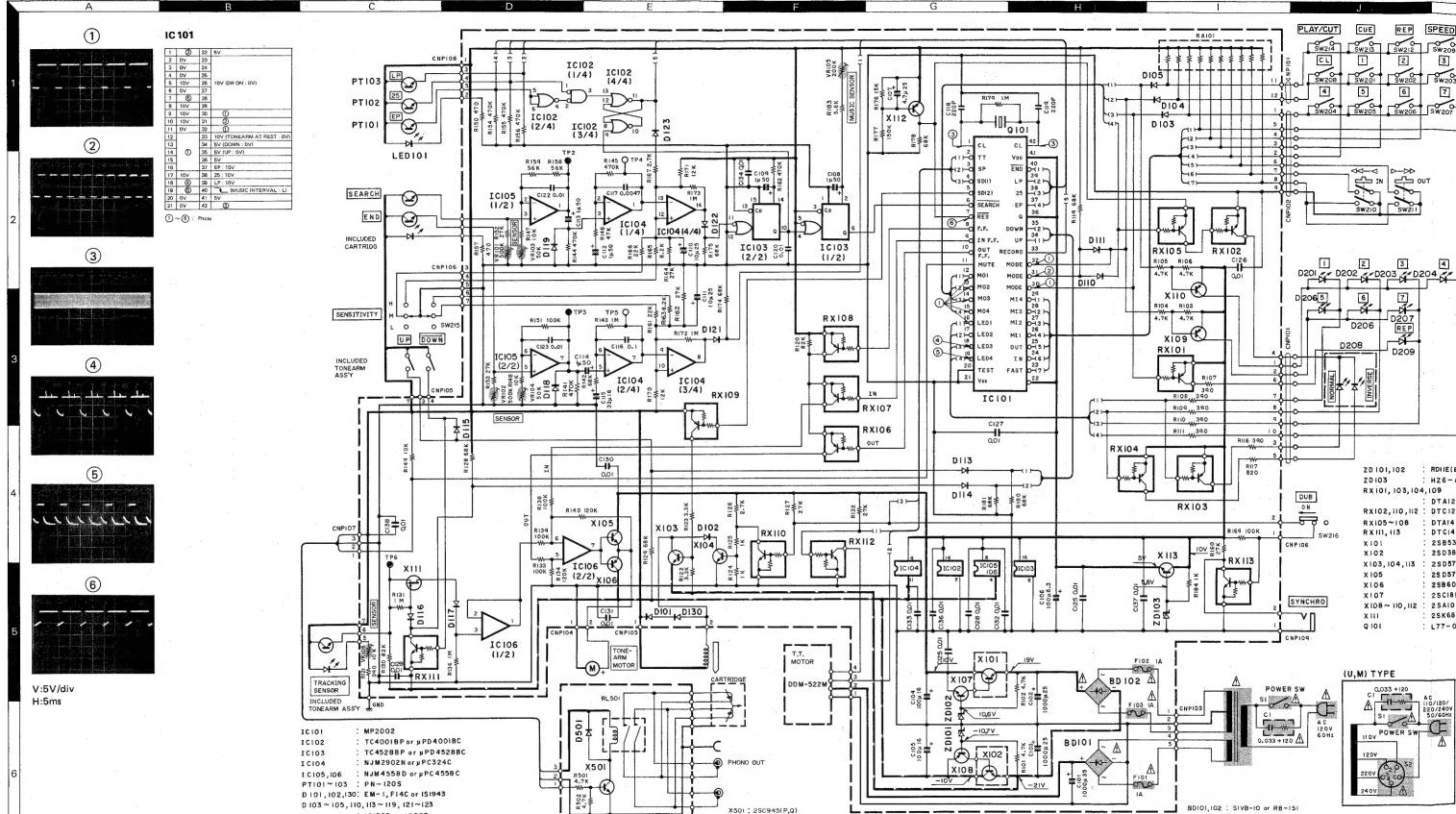
IC101 : MP2002

1	③	22	5V
2	0V	23	
3	0V	24	
4	0V	25	
5	10V	26	10V (SW ON : 0V)
6	0V	27	
7	⑥	28	
8	10V	29	
9	10V	30	①
10	10V	31	②
11	0V	32	①
12	①	33	10V (TO NEARMAT REST : 0V)
13		34	5V (DOWN : 0V)
14		35	5V (UP : 0V)
15		36	5V
16		37	EP : 10V
17	10V	38	25 : 10V
18	④	39	LP : 10V
19	⑤	40	↓ (MUSIC INTERVAL : L)
20	0V	41	5V
21	0V	42	③

① ~ ⑥ : See photo on page 7.

**MUTING UNIT (W02-0596-08)**  
Component side view





2SA1015 2SC2308  
2SA733 2SC945  
2SA844 2SD667  
2SB647  
2SC1815  
2SC2001  
2SC2120

2SB605  
2SD571

2SB536  
2SD381

UPC4558C

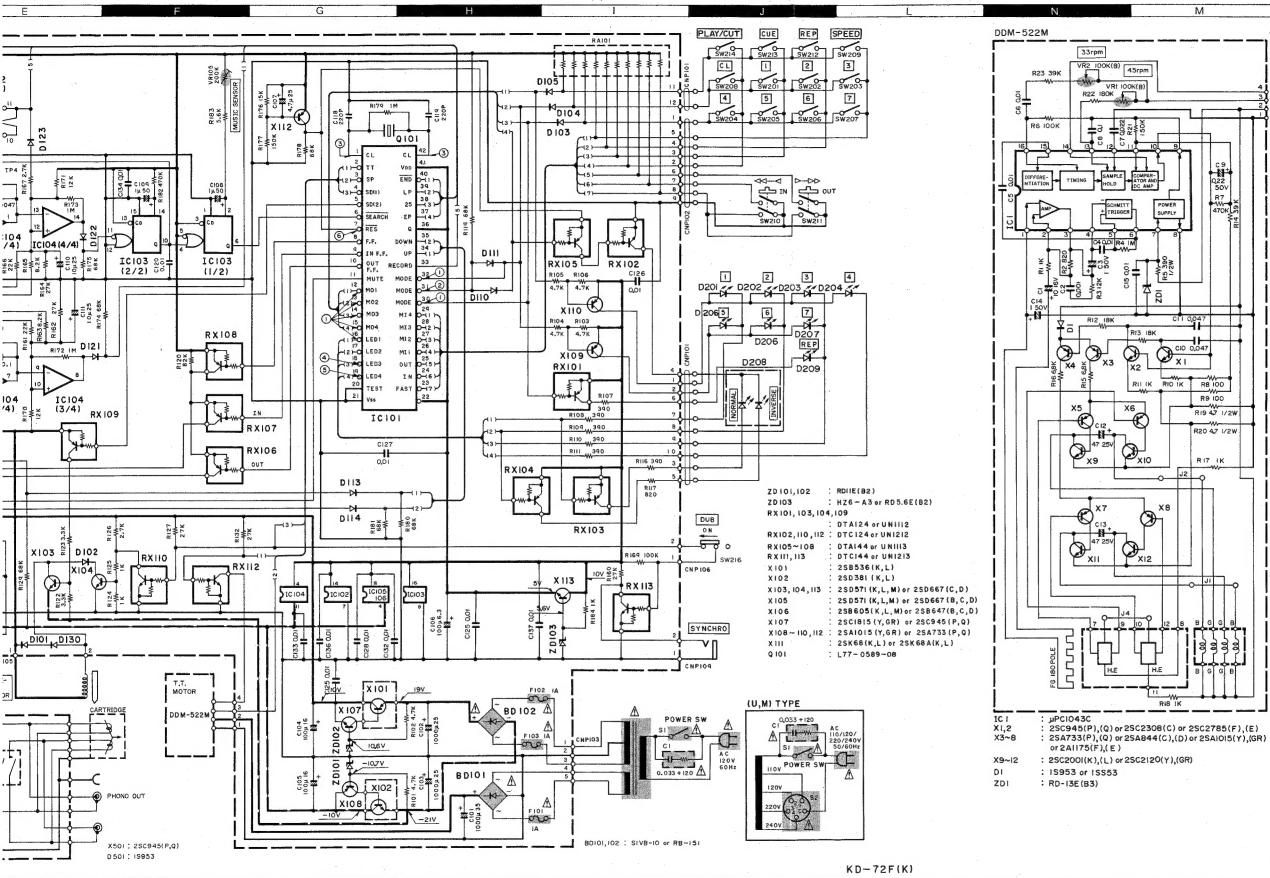
NJM4558D

213 NJM2902N  
UPC324C

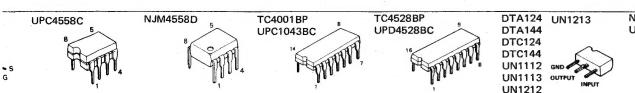
MP2002

# COMPUTER CONTROLLED AUTOMATIC TURNTABLE

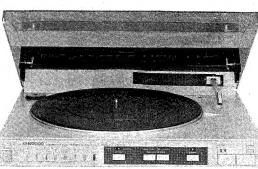
KD-72F/B



KD-72F (K)



**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). **•**Indicates critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptable if insulated from the power circuit) before the appliance is returned to the customer.



## SPECIFICATION

**Motor and Turntable**  
 Direct drive system  
 Turntable motor  
 DC motor  
 Power: 2.0 W (11.0 V)  
 Maximum torque: 0.05 Nm  
 Maximum RPM: 33 1/3, 45 rpm  
 Weight: 1.0 kg  
 Dimensions: 330 (W) x 230 (D) x 100 (H) mm  
 Hole to Flange: 128 mm (Hole weight)

**Turntable**  
 Type: Static belt-driven, Linear tracking turntable  
 Tracking force: 1.0 g  
 Tracking error: ±0.2°

**Cartridge**  
 Type: Ortofon 2M Red with clip in VM cartridge and phono preamp  
 Frequency Response: 20-20,000 Hz (±1.0 dB)  
 Channel Separation: Better than 100 dB (1000 Hz)  
 Load Impedance: 47 kΩ  
 Output Impedance: 100 mV  
 Dimensions: 17 x 10 x 10 cm  
 Weight: 0.4 kg

**Dimensions**  
 Dimensions: 330 (W) x 230 (D) x 100 (H) mm  
 Hole to Flange: 128 mm (Hole weight)

**Power Requirements**  
 AC 100-120 V, 60 Hz (U.S. and Canada models), AC 110-130 V, 50 Hz (Europe and Japan models), AC 110-130 V, 60 Hz (U.S. and Canada models), AC 110-130 V, 50 Hz (Europe and Japan models)

**Power Consumption**  
 12 W

**Dimensions**  
 330 (W) x 230 (D) x 100 (H) mm  
 Hole to Flange: 128 mm (Hole weight)

**Accessories**  
 3P power cord  
 AC power cord

Note: We reserve a policy of continuous enhancement in development. For this reason specifications may be changed without notice.

Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

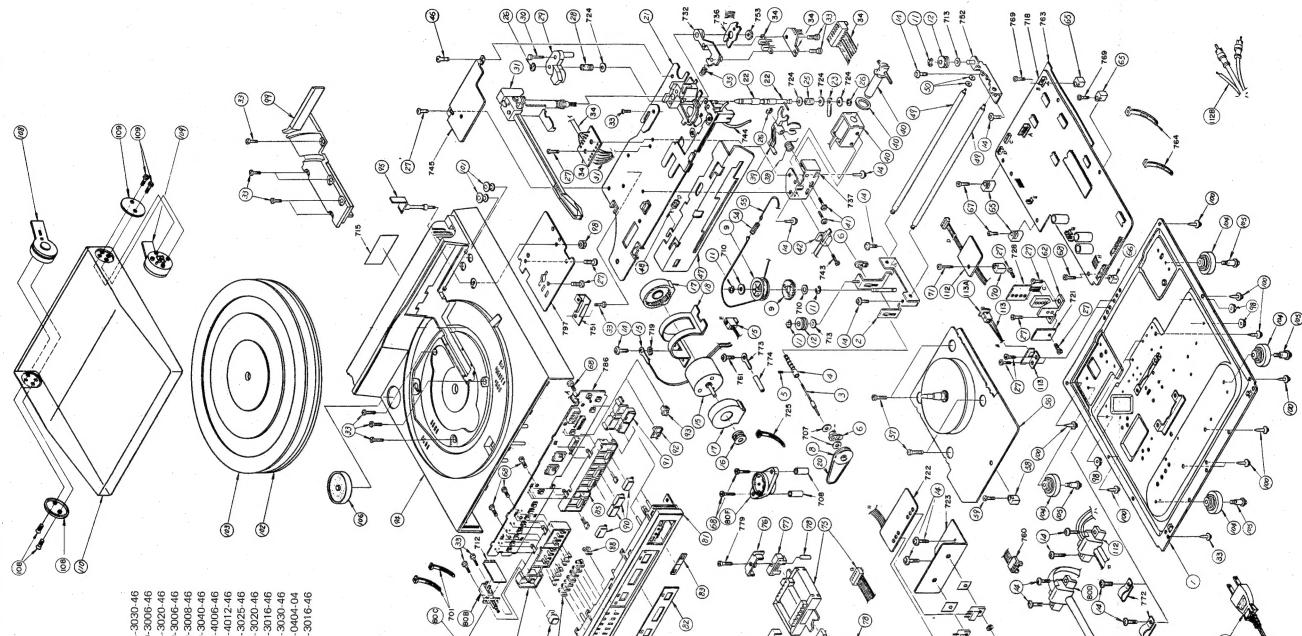
Kenwood poursuit une politique de progrès constants en ce qui concerne le développement. Pour cette raison, les spécifications sont sujettes à modifications sans préavis.

Kenwood strebt ständige Verbesserungen in der Entwicklung an. Daher bleiben Änderungen der technischen Daten jederzeit vorbehalten.

- DC voltages are as measured with a high impedance voltmeter at 33 1/3 r.p.m. mode. Values may vary slightly due to variations between individual instruments and/or units.
- Les tensions ci-dessous doivent être mesurées avec un voltmètre à haute impédance, près de 33 1/3 r.p.m. en mode du tourne-disque. Les valeurs peuvent différer légèrement en fonction des variations entre les appareils et/ou les instruments de mesure individuels.
- Die angegebenen Gleichspannungswerte wurden bei 33 1/3 r.p.m. in der Wiedergabe mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Messwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.u. geringfügig.

## EXPLODED VIEW

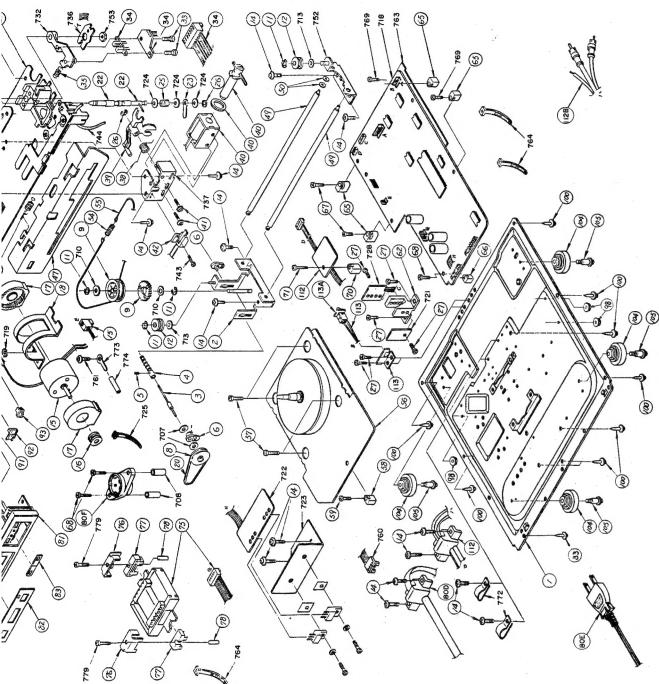
Exploded No. larger than 700 are not supplied.



11 :  $\phi 3$  (IR) : N94-3030-46  
 14 :  $\phi 3$  (IR) : N94-3005-46  
 26 :  $\phi 2$  (IR) : N94-3020-46  
 27 :  $\phi 3 \times 6$  (Bi-Tap) : N99-3006-46  
 33 :  $\phi 3 \times 8$  (Bi-Tap) : N99-3008-46  
 41 :  $\phi 3 \times 4$  (TP) : N99-3004-46  
 46 :  $\phi 4 \times 6$  (Bi-Tap) : N99-4006-46  
 48 :  $\phi 4 \times 12$  (Bi-Tap) : N99-4012-46  
 57 :  $\phi 4 \times 25$  (Bi-Tap) : N99-3025-46  
 59 :  $\phi 3 \times 20$  (Bi-Tap) : N99-3016-46  
 67 :  $\phi 3 \times 16$  (Bi-Tap) : N99-3016-46  
 68 :  $\phi 3 \times 18$  (Bi-Tap) : N99-3018-46  
 71 :  $\phi 3 \times 30$  (Bi-Tap) : N99-3030-46  
 98 : M3 : N14-0404-04  
 100 :  $\phi 3 \times 16$  (TP-T) : N91-3016-46

## DED VIEW

Exploded No. larger than 700 are not supplied.



## **PARTS LIST**

\* New Parts  
Parts without Parts No. are not supplied.  
Les articles non mentionnés dans le Parts No. ne sont pas fournis.  
Teile ohne Parts No. werden nicht geliefert.

Ref. No.	Address	Part No.	Parts No.	Description	Destin.	Re-
參 照 番 号	位 重	部 重	部 番 号	部 品 名 / 規 格	仕 向	備 考
		K : KD-72FB	P : KD-72FB	UE : KD-72FB	M2 : KD-72FB	
		K2 : KD-72FB	K2 : KD-72FB	U : KD-72FB		
1	40	*	A10-0720-08	CHASSIS ASSY		
1	40	*	A10-0740-08	CHASSIS ASSY		
1	40	*	A10-0740-08	CHASSIS ASSY		KI2P
2	38	*	A10-0721-08	CHASSIS ASSY (MECHANISM)		UEJM
3	38	*	D21-1020-08	SHAFT		M2
4	38	*	D13-0140-08	WARM		
5	38	*	N09-1320-08	SCREW (2X3)		
6	38	*	D23-0183-08	BEARING		
8	38	*	D15-0209-08	PULLEY(2)		
9	38	*	D13-0142-08	DRUM GEAR ASSY		
12	38,3C	*	D15-0120-08	PULLEY		
15	28,3B	*	T42-0034-08	MOTOR		
16	3B	*	D15-0211-08	PULLEY(1)		
17	3B	*	F07-0446-08	COVER		
18	3B	*	J21-3389-08	MOUNTING HARDWARE		
20	3B	*	D16-0093-08	BELT		
21	2C	*	J19-0866-08	TONEARM BASE ASSY		
22	3C	*	D21-1021-08	SHAFT ASSY		
23	3C	*	E23-0131-08	TERMINAL		
25	3C	*	G01-1439-08	COMPRESSION SPRING		
28	2C	*	G01-1440-08	COMPRESSION SPRING		
29	2C	*	D12-0098-08	EL PLATE		
30	2C	*	N09-1331-08	SCREW (2.6X15)		
31	2C	*	J91-0220-08	TONEARM ASSY		M
31	2C	*	J91-0245-08	TONEARM ASSY		KK2U
31	2C	*	J91-0245-08	TONEARM ASSY		
34	2C,3C	*	W02-0570-08	TONEARM SENSOR PCB ASSY		
35	3C	*	G01-1441-08	COMPRESSION SPRING		
38	3C	*	G01-1442-08	TORSION SPRING		
39	3C	*	D12-0099-08	EL LEVER		
40	3C	*	T94-0040-08	SOLENOID ASSY		
42	3B	*	S46-1039-08	LEAF SWITCH ASSY		
47	3B	*	F19-0313-08	METAL SHEET		
48	2B	*	G01-1443-08	TENSION SPRING		
49	3C	*	J90-0128-08	RAIL		
50	3C	*	G53-0049-08	PACKING		
54	3C	*	G01-1444-08	TENSION SPRING		
55	3C	*	J60-0007-08	STRING		
56	4B	*	T43-0039-08	DD MTRR ASSY		
58	4B	*	J19-0867-08	PCB SUPPORT		
62	4B	*	J19-0868-08	SENSOR HOLDER		
65	3C	*	J19-0869-08	SENSOR PCB SUPPORT		
66	4B	*	J19-0870-08	PCB SUPPORT		
70	3B	*	J19-0871-08	PCB SUPPORT		
73	3B	*	L01-3761-08	POWER TRANSFORMER		KK2P
75	3A	*	L01-3765-08	POWER TRANSFORMER		
75	3A	*	L01-3765-08	POWER TRANSFORMER		KI2P
76	3A	*	I21-3300-08	MOUNTING HARDWARE		
77	3A	*	J02-0147-08	INSULATOR		
78	2A,3A	*	J31-0216-08	COLLAR		
80B	2A	*	S40-1084-08	POWER SWITCH (S1)		
80C	2A	*	F91-0547-08	SPARK KILLER (L1)		
80D	4B	*	J19-0894-08	CORD BUSHING		KK2P

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80E	4A	*	E30-0917-08	POWER CORD	UEM	
80E	4A	*	E30-0917-08	POWER CORD	M2	
80E	4A	*	E30-1018-08	POWER CORD	KK2	
80F	3A	*	S29-1143-08	POWER VOLTAGE SELECTOR (S2)	UEM	
80F	3A	*	S29-1143-08	POWER VOLTAGE SELECTOR (S2)	M2	
81	3A	*	A20-4090-08	PANEL	KK2U	
81	3A	*	A20-4090-08	PANEL	UEM2P	
81	3A	*	A20-4091-08	PANEL	M	
82	3A	*	B03-1264-08	DRESSING BOARD		
83	3A	*	B03-1265-08	DRESSING BOARD	M	
83	3A	*	B03-1524-08	DRESSING BOARD	KK2U	
83	3A	*	B03-1524-08	DRESSING BOARD	UEM2P	
84	2A	*	A22-0429-08	SUB PANEL		
85	2B	*	A22-0430-08	SUB PANEL		
87	2A	*	K29-1446-04	KNB ASSY (POWER)		
88	2A	*	K27-1200-08	KNB ASSY (RANDUN)	M	
88	2A	*	K27-1201-08	KNB ASSY (RANDUN)	KK2U	
88	2A	*	K27-1320-08	KNB ASSY (RANDUN)	UEM2P	
88	2A	*	K27-1320-08	KNB ASSY (RANDUN)	M	
90	2A	*	K29-1602-08	KNB ASSY (OPERATION)	KK2U	
90	2A	*	K29-1651-08	KNB ASSY (OPERATION)	UEM2P	
91	2B	*	K29-1603-08	KNB ASSY (SWITCH)	M	
91	2B	*	K29-1852-08	KNB ASSY (SWITCH)	KK2U	
91	2B	*	K29-1852-08	KNB ASSY (SWITCH)	UEM2P	
92	3B	*	K27-1202-08	KNB (SENSITIVITY)	M	
92	3B	*	K27-1202-08	KNB (SENSITIVITY)	KK2U	
92	3B	*	K27-1321-08	KNB (SENSITIVITY)	UEM2P	
93	3B	*	K27-1203-08	KNB (DUBBING)	M	
93	3B	*	K27-1322-08	KNB (DUBBING)	KK2U	
93	3B	*	K27-1322-08	KNB (DUBBING)	UEM2P	
94	2B	*	A02-0177-08	TURNTABLE CASE	M	
94	2B	*	A02-0196-08	TURNTABLE CASE	KK2U	
94	2B	*	A02-0199-08	TURNTABLE CASE	UEM2P	
95	2C	*	J19-0872-08	TONEARM REST	M	
95	2C	*	J19-2156-08	TONEARM REST	KK2U	
95	2C	*	J19-2156-08	TONEARM REST	UEM2P	
99	1C	*	F07-0454-08	COVER	M	
99	1C	*	F07-0454-08	COVER	KK2U	
1C	*	F07-0454-08	COVER	UEM2P		
101	2C	*	B09-0037-08	CAP	M	
101	2C	*	B09-0045-08	CAP	KK2U	
101	2C	*	B09-0045-08	CAP	UEM2P	
102	1A	*	D02-0084-08	TURNTABLE PLATTER		
103	1A	*	G16-0080-08	TURNTABLE SHEET		
104	4A, 4B	*	J02-0148-08	INSULATOR		
105	4A, 4B	*	N09-1332-08	SCREW		
106	2B	*	W01-0115-08	EP ADAPTER		
108	1C	*	J50-0116-08	HINGE ASSY (L)	KUJE	
108	1C	*	J50-0116-08	HINGE ASSY (L)	M2P	
109	1C	*	J50-0117-08	HINGE ASSY (R)	KUJE	
109	1C	*	J50-0117-08	HINGE ASSY (R)	M2P	
110	1A	*	A53-0623-08	DUST COVER	KUJE	
110	1A	*	A53-0623-08	DUST COVER	M2P	
110	1A	*	A53-0625-08	DUST COVER	M	

E. Sancilio & F. Soto, *Int. J. Audio. Sci.*, 10, 1-12, 2001. © 2001 Kluwer Academic Publishers. Printed in the Netherlands.

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WE APPROVE M. 1 M. 2 M. 3 M. 4

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## PARTS LIST

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112	4A, 3B	*	W02-0574-08	MUTING PCB ASSY	UJEM	
112	4A, 3B	*	W02-0574-08	MUTING PCB ASSY	M2	
112	4A, 3B	*	W02-0596-08	MUTING PCB ASSY	KK2	
112	4A, 3B	*	W02-0602-08	MUTING PCB ASSY	P	
112B	4C	*	E30-0893-08	AUDIT CARD	UJEM	
112B	4C	*	E30-0883-08	AUDIT CARD	M2P	
112B	4C	*	E30-0916-08	AUDIT CARD	KK2	
112C	4A	*	J19-0877-08	CORD CLAMPER	UJEM	
112C	4A	*	J19-0877-08	CORD CLAMPER	M2	
112C	4A	*	J19-2155-08	CORD CLAMPER	KK2	
113	3B	*	J21-3391-08	JACK ASSY		
113A	3B	*	E30-0122-08	JACK	KK2	
-			B46-0092-04	WARRANTY CARD	P	
-			B46-0093-03	WARRANTY CARD	UJE	
-			B46-0094-04	WARRANTY CARD		
-			B46-0095-04	WARRANTY CARD	UJE	
-		*	B50-5071-00	INSTRUCTION MANUAL (E)		
-		*	B50-5072-00	INSTRUCTION MANUAL (F)	MM2P	
-		*	B50-5075-00	INSTRUCTION MANUAL	MM2	
-		*	E30-0879-08	AUTB FUNCTION CARD		
-		*	H01-5200-08	ITEM CARTON CASE	KUJE	
-		*	H01-5200-08	ITEM CARTON CASE	M2P	
-		*	H01-5202-08	ITEM CARTON CASE	K2	
-		*	H10-1719-08	PCLYSTYRENE FIXTURE (L)	K2	
-		*	H10-1720-08	PCLYSTYRENE FIXTURE (R)	K2	
-		*	H10-1727-08	PICKUP PAD		
-		*	H10-1733-08	PCLYSTYRENE FIXTURE (L)	KUJE	
-		*	H10-1739-08	PCLYSTYRENE FIXTURE (L)	MM2P	
-		*	H10-1740-08	PCLYSTYRENE FIXTURE (R)	KUJE	
-		*	H10-1740-08	PCLYSTYRENE FIXTURE (R)	MM2P	
D201-207		*	H01-5201-08	ITEM CARTON CASE	M	
D208		*	B30-1032-08	LED PROGRAM		
D209		*	B30-1033-08	LED (2 COLOR) SPEED		
D501		*	B30-1034-08	LED REPEAT		
		1S953		DIODE		
SL504		*	S51-2017-08	RED RELAY		
SM411-209		*	S40-2197-08	TACT SWITCH		
SM210, 211		*	S40-2198-08	DOUBLE-ACTION TACT SWITCH		
SM212-214		*	S40-2197-08	TACT SWITCH		
SM215		*	S31-2086-08	SLIDE SWITCH (Sensitivity)		
SM216		*	S40-2199-08	PUSH SWITCH (DUB)		
X501		2SC945(P, Q)		TRANSISTOR		
<b>ELECTRIC PARTS</b>						
LED101		B30-1031-08	LED (SEL-2110S)			
C101		CE040411V102M	ELECTR8	1000UF	35WV	
C102, 103		CE040411E102M	ELECTR8	1000UF	25WV	
C104, 105		CE040411C101M	ELECTR8	100UF	16WV	
C106		CE040411D101M	ELECTR8	100UF	6.3WV	
C107		CE040411E4R7M	ELECTR8	4.7UF	25WV	
C108, 109		CE040411H01M	ELECTR8	1UF	50WV	
C110, 111		CE040411E100M	ELECTR8	1UF	25WV	
C122, 113		CE040411H01M	ELECTR8	1UF	50WV	
C114, 115		CE040411C30M	ELECTR8	33UF	16WV	
C116		CO93M1H04J	MYLAR	0.1UF	J	

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C117			Q0293MH1472J	MYLAR 0.0047UF J		
C118-119			Q045SL1H221J	CERAMIC 220PF J		
C120			CK45B1H103Z	CERAMIC 0.01UF Z		
C122-123			CK45B1H103Z	CERAMIC 0.01UF Z		
C125-138			CK45B1H103Z	CERAMIC 0.01UF Z		
△ F101-103			F05-1024-05	FUSE (1A)		
RA101			R90-0288-08	BAR RESISTOR		
VR101, 102			R12-701B-08	TRIMMING POT 500K (SENSOR)		
VR103, 104			R12-402B-08	TRIMMING POT 50K (SENSOR)		
VR105			R12-504S-08	TRIMMING POT 200K (SWN POS1.)		
VR106			R12-3087-08	TRIMMING POT 10K (TRACKING)		
△ B0101, 102			R8-151	DIODE		
△ B0101, 102			S1VB-10	DIODE		
D101, 102			EM-1	DIODE		
D101, 102			F14C	DIODE		
D101, 102			IS1943	DIODE		
D103-105			IS1588	DIODE		
D103-105			IS1953	DIODE		
D110			IS1588	DIODE		
D110			IS1953	DIODE		
D113-119			IS1588	DIODE		
D113-119			IS1953	DIODE		
D121-123			IS1588	DIODE		
D121-123			IS1953	DIODE		
D130			EM-1	DIODE		
D130			F14C	DIODE		
D130			IS1943	DIODE		
IC101			MP2002	IC (U-ESM)		
IC102			TC4001BP	IC		
IC102			UPD40019C	IC		
IC103			TC4528BP	IC		
IC103			UPD4528BC	IC		
IC104			NJM2902N	IC		
IC104			UPC324C	IC		
IC105, 106			NJM4558D	IC		
IC105, 106			UPC4558C	IC		
PT101-103			PN-120S	PHOTO TRANSISTOR		
Q101			L77-0589-08	CRYSTAL RESONATOR		
RX101			DTA124	DIGITAL TRANSISTOR		
RX101			UN1112	DIGITAL TRANSISTOR		
RX102			DTA124	DIGITAL TRANSISTOR		
RX102			UN1112	DIGITAL TRANSISTOR		
RX103, 104			DTA124	DIGITAL TRANSISTOR		
RX103, 104			UN1112	DIGITAL TRANSISTOR		
RX105-108			DTA144	DIGITAL TRANSISTOR		
RX105-108			UN1113	DIGITAL TRANSISTOR		
RX109			DTA124	DIGITAL TRANSISTOR		
RX109			UN1112	DIGITAL TRANSISTOR		
RX110			DTA124	DIGITAL TRANSISTOR		
RX110			UN1112	DIGITAL TRANSISTOR		
RX111			DTA144	DIGITAL TRANSISTOR		
RX111			UN1113	DIGITAL TRANSISTOR		
RX112			DTA124	DIGITAL TRANSISTOR		
RX112			UN1112	DIGITAL TRANSISTOR		
RX112			UN1213	DIGITAL TRANSISTOR		
RX112			DTA124	DIGITAL TRANSISTOR		
RX112			UN1212	DIGITAL TRANSISTOR		

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RX113			DTC144	DIGITAL TRANSISTOR		
RX113			UN1213	DIGITAL TRANSISTOR		
X101			2SB534(K, L)	TRANSISTOR		
X102			2SD381(K, L)	TRANSISTOR		
X103, 104			2SD571(K, L, M)	TRANSISTOR		
X103, 104			2SD467(C, D)	TRANSISTOR		
X105			2SD571(K, L, M)	TRANSISTOR		
X106			2SD467(B, C, D)	TRANSISTOR		
X107			2SD1815(Y, GR)	TRANSISTOR		
X107			2SD445(P, GR)	TRANSISTOR		
X108-110			2SA1015(Y, GR)	TRANSISTOR		
X108-110			2SA733(P, Q)	TRANSISTOR		
X111			2SK648(K, L)	FET		
X111			2SK458(K, L)	FET		
X112			2SA1015(Y, GR)	TRANSISTOR		
X112			2SA733(P, Q)	TRANSISTOR		
X113			2SD571(K, L, M)	TRANSISTOR		
X113			2SD467(C, D)	TRANSISTOR		
ZD101, 102			RD11E(B2)	ZENER DIODE		
ZD103			H26-A3	ZENER DIODE		
ZD103			RDS, 6E(B2)	ZENER DIODE		
MOTOR ASS'Y						
IC1		*	UPC1043C	IC (MOTOR CONTROL)		

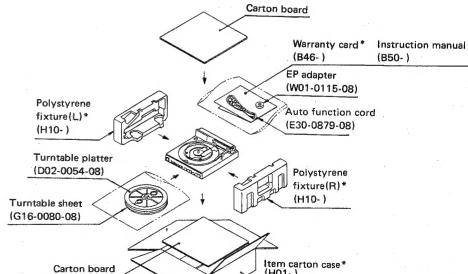
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